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10/780,422

02/17/2004

Robert H. Burgener II

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MADSON & AUSTIN  
GATEWAY TOWER WEST  
SUITE 900  
15 WEST SOUTH TEMPLE  
SALT LAKE CITY, UT 84101

EXAMINER

CANNING, ANTHONY J

ART UNIT

PAPER NUMBER

2879

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/780,422

Applicant(s)

BURGENER ET AL.

Examiner

Anthony J. Canning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/05/05</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 22, 24, 26, 27, 29, 32, 35 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record).

As to claim 1, Maeno et al. disclose an electroluminescent device comprising: a layer of electroluminescent material comprising: a ceramic oxide host compound (see Fig. 1, item 4; Introduction section, last paragraph; the luminescent layer is formed by doping the insulating alumina film with impurities) such as transition metals, which will form oxides in the aluminum oxide film); and one or more metal oxide dopant compounds which form a solid solution with the ceramic oxide host compound (see Fig. 1, item 4; Introduction section, last paragraph; the luminescent layer is formed by doping the insulating alumina film with impurities such as transition metals, which will form oxides in the aluminum oxide film); at least one barrier layer contacting the layer of electroluminescent material capable of inhibiting chemical reaction of the electroluminescent material (see Fig. 1, item 3; specifically the portion of item 3 that is between the luminescent layer and item 1, the optical plastic base; alumina is a non-reactive material), wherein the barrier layer comprises a low reactive material that is stable at high temperature

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(alumina is a stable material); a transparent conductive oxide layer (see Fig. 1, item 2; ITO is a transparent conducting material); a ground plane, wherein the transparent conductive oxide and the ground plane are disposed on opposite sides of the electroluminescent material (see Fig. 1, item 5); and an electric field generator electrically connected to the conductive oxide layer and the ground plane for generating an electric field (see Fig. 1, items D and C; applying a voltage on the ITO and aluminum layer will produce an electric field across the luminescent layer).

As to claim 2, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further comprising a dielectric layer disposed between the layer of electroluminescent material and the ground plane (see Fig. 1, item 3; specifically the portion of item 3 that is between the luminescent layer and item 5, the aluminum ground plane).

As to claim 22, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the ceramic oxide host compound comprises multiple metal oxides to provide a crystal structure that is compatible with the one or more dopant compounds (since the electroluminescent layer of Maeno et al. is the same as that disclosed in the instant application, the examiner interprets this to mean that the alumina is a crystal structure compatible with the manganese dopant).

As to claim 24, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the metal oxide dopant compound is from  $\text{MnO}_2$  (section 3.2, the first paragraph; Mn doping of an alumina film will produce  $\text{MnO}_2$  molecules).

As to claim 26, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the metal oxide dopant compounds are selected to provide acceptor and donor sites within the ceramic oxide host compound (section 3.2, the last

paragraph; Fig. 9; the spectrum of Mn in the alumina film show that the Mn produce acceptor and donor sites since alumina does not emit photons with the wavelength of yellow light).

As to claim 27, Maeno et al. disclose the electroluminescent device according to claim 1, wherein the barrier layer comprises a metal oxide.

As to claim 29, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the barrier layer comprises alumina (see Fig. 1, item 3).

As to claim 32, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the layer of electroluminescent material is deposited as a dense thin film (the film of Maeno et al. is the same as one in the instant application's specification; therefore the examiner interprets the electroluminescent material of the prior art to be a dense thin film based on the material properties of alumina doped with manganese).

As to claim 35, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the layer of electroluminescent material is deposited as a thick film (Experimental section; the Al film is 0.3 mm thick, which is thick compared to smaller thicknesses).

As to claim 39, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. further disclose that the transparent conductive oxide is indium tin oxide (see Fig. 1, item 2).

Claims 1, 6, 7, 11, 22-25, 32, 33, 36, 38, 40, 44 and 45 are rejected under 35

U.S.C. 102(b) as being anticipated by Minami et al. (Jpn. J. Appl. Phys. Vol. 40) (of record).

As to claim 1, Minami et al. disclose an electroluminescent device comprising: a layer of electroluminescent material comprising: a ceramic oxide host compound (see Fig. 1; page L864, second paragraph); and one or more metal oxide dopant compounds which form a solid solution with the ceramic oxide host compound (see Fig. 1; page L864, second paragraph; manganese will form oxide molecules in the ceramic oxide host material); at least one barrier layer contacting the layer of electroluminescent material capable of inhibiting chemical reaction of the electroluminescent material (see Fig. 1, the barium titanate layer), wherein the barrier layer comprises a low reactive material that is stable at high temperature (barium titanate is a stable material); a transparent conductive oxide layer (see Fig. 1, the ZnO:Al layer); a ground plane, wherein the transparent conductive oxide and the ground plane are disposed on opposite sides of the electroluminescent material (see Fig. 1, the Al thin film); and an electric field generator electrically connected to the conductive oxide layer and the ground plane for generating an electric field (see Fig. 1, the unlabelled circuitry connecting the Al thin film to the ZnO:Al film; page L 865, last paragraph to begin in the left hand column).

As to claim 6, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the ceramic oxide host compound comprises two or more metal oxide compounds and wherein one of the metal oxide compounds  $\text{GeO}_2$  (see Fig. 1; page L 864 second paragraph).

As to claim 7, Minami et al. disclose the electroluminescent device according to claim 6. Minami et al. further disclose that the ceramic oxide host compound comprises  $\text{GeO}_2$  and  $\text{Y}_2\text{O}_3$  (see Fig. 1; page L 864, second paragraph).

As to claim 11, Minami et al. disclose the electroluminescent device according to claim 7. Minami et al. further disclose that the ceramic oxide host compound comprises  $\text{GeO}_2$ , and wherein the metal oxide dopant is  $\text{MnO}_2$  (see Fig. 1; page L 864, second paragraph).

As to claim 22, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the ceramic oxide host compound comprises multiple metal oxides to provide a crystal structure that is compatible with the one or more dopant compounds (since the electroluminescent layer of Minami et al. is the same as that disclosed in the instant application, the examiner interprets this to mean that the  $(\text{Y}_2\text{O}_3\text{-GeO}_2)$  is a crystal structure compatible with the manganese dopant).

As to claim 23, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the ceramic oxide host compound is a solid solution of multiple metal oxide with a band gap ranging from about 1 eV to 4 eV (the ceramic host of Minami et al. is the same as that disclosed in the specification of the instant application, therefore the examiner interprets this to mean that  $(\text{Y}_2\text{O}_3\text{-GeO}_2)\text{:Mn}$  has a band gap ranging from 1 eV to 4 eV, which are known band gap values for semiconductors).

As to claim 24, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the metal oxide dopant compound is from  $\text{MnO}_2$  (page L 864, second paragraph; Mn doping of  $\text{Y}_2\text{O}_3\text{-GeO}_2$  will produce  $\text{MnO}_2$  molecules).

As to claim 25, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the dopant is present in the host at an amount in the range from about 0.002 mole % to 0.1 mole % (page L 864; the third paragraph, line 12; the mole percent of the atomic percent will produce the claimed value; page L 865, paragraph 2; because the  $\text{GeO}_2$  mole % can be adjusted from 0-100%, the  $\text{MnO}_2$  percent can be adjusted to fit the desired range).

As to claim 32, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the layer of electroluminescent material is deposited as a dense thin film (page L 864, third paragraph, the examiner interprets 1-2 micron phosphor as a dense thin film).

As to claim 33, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the layer of electroluminescent material is deposited as a dense thin film having a thickness less than about 1 micron (page L 864, third paragraph, the phosphor thickness is 1-2 microns, which is about 1 micron).

As to claim 34, Minami et al. disclose the electroluminescent device according to claim 32. Minami et al. further disclose that the electric field generator is configured to produce a voltage in the range from about 100 volts to 500 volts (see Fig. 6).

As to claim 36, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the layer of electroluminescent material is deposited as a thick film having a thickness greater than about 1 micron (page L 864, third paragraph).

As to claim 38, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the electric field generator is configured to produce an



electric field having a frequency greater than about 60 Hz and tuned to a resonance unique to the electroluminescent device (page L 864, paragraph 3).

As to claim 40, Minami et al. disclose the electroluminescent device according to claim 1. Minami et al. further disclose that the transparent conductive oxide is zinc oxide doped with gallium or zinc oxide doped with aluminum (see Fig. 1, the ZnO:Al layer).

As to claim 44, Minami et al. disclose an electroluminescent compound which emits non-thermal light in response to an electric field comprising: a multicomponent ceramic oxide host compound comprising two or more metal oxide compounds, wherein a first metal oxide compound is  $\text{GeO}_2$ , and a second metal oxide compound that is  $\text{Y}_2\text{O}_3$ ; and one or more dopant compounds which form a one phase solid solution with the ceramic oxide host compound, wherein the one  $\text{MnO}_2$  (see Fig. 1; page L 864, paragraph 2).

As to claim 45, Minami et al. disclose the electroluminescent compound according to claim 44. Minami et al. further disclose that the ceramic oxide host compound comprises  $\text{GeO}_2$  and  $\text{Y}_2\text{O}_3$ .

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 4, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record) in view of Minami et al. (Jpn. J. Appl. Phys. Vol. 40) (of record).

As to claims 3 and 4, Maeno et al. disclose the electroluminescent device according to claim 2. Maeno et al. fail to disclose that the dielectric layer comprises a titanate compound.

In the same field of endeavor, Minami et al. disclose an electroluminescent device with a dielectric layer of barium titanate (see Fig. 1; page L 864, second paragraph). Minami et al. further disclose that the barium titanate layer is used to fabricate a TFEL device using the oxide phosphor host and dopant (page L 864, second paragraph).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Maeno et al. to include a dielectric layer of barium titanate, as taught by Minami et al., to fabricate a TFEL device using an oxide phosphor host and dopant.

As to claims 41 and 42, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. fail to disclose a dielectric layer disposed between the layer of electroluminescent material and the ground plane, wherein the ceramic oxide host compound

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comprises two or more metal oxide compounds and wherein at least one of the metal oxide compounds is a first metal oxide compound selected from  $\text{GeO}_2$  and at least one other metal oxide compound different from the first metal oxide compound is selected from  $\text{Y}_2\text{O}_3$ , wherein the metal oxide dopant compound is selected from  $\text{MnO}_2$ , and the barrier layer is a metal oxide.

In the same field of endeavor, Minami et al. disclose an electroluminescent device including a dielectric layer disposed between the layer of electroluminescent material and the ground plane, wherein the ceramic oxide host compound comprises two or more metal oxide compounds and wherein at least one of the metal oxide compounds is a first metal oxide compound selected from  $\text{GeO}_2$  and at least one other metal oxide compound different from the first metal oxide compound is selected from  $\text{Y}_2\text{O}_3$ , wherein the metal oxide dopant compound is selected from  $\text{MnO}_2$ , and the barrier layer is a metal oxide (see Fig. 1; page L 864, the first, second and third paragraphs). Minami et al. further disclose that this arrangement allows for a high-luminance multicolor-emitting TFEL device.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent display of Maeno et al. to include a dielectric layer disposed between the layer of electroluminescent material and the ground plane, wherein the ceramic oxide host compound comprises two or more metal oxide compounds and wherein at least one of the metal oxide compounds is a first metal oxide compound selected from  $\text{GeO}_2$  and at least one other metal oxide compound different from the first metal oxide compound is selected from  $\text{Y}_2\text{O}_3$ , wherein the metal oxide dopant compound is selected from  $\text{MnO}_2$ , and the barrier layer is a metal oxide, as taught by Minami et al., to produce a high-luminance multicolor-emitting TFEL device.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record) in view of Minami et al. (Jpn. J. Appl. Phys. Vol. 40) (of record) and in further view of Curless (U.S. 2003/0015704 A1).

As to claim 5, Maeno et al. and Minami et al. disclose the electroluminescent device according to claim 3. Maeno et al. and Minami et al. fail to disclose that the titanate compound is strontium barium titanate.

Curless discloses a semiconductor device with a barrier layer composed of strontium barium titanate (see Fig. 1, item 24; paragraph 0054). Buffer layers are commonly used in semiconductor and electroluminescent devices to protect the phosphor layer.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Maeno et al. to include a barrier layer of strontium barium titanate, as taught by Curless, to protect the phosphor layer.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minami et al. (Jpn. J. Appl. Phys. Vol. 40) in view of Berkstresser et al. (U.S. 4,894,583).

As to claim 9, Minami et al. disclose the electroluminescent device according to claim 6. Minami et al. fail to disclose that the ceramic oxide host compound comprises  $\text{SiO}_2$  and one or more oxides selected from  $\text{ZnO}$  and  $\text{Y}_2\text{O}_3$ .

Berkstresser et al. disclose a display device with a phosphor configured such that the ceramic oxide host compound comprises  $\text{SiO}_2$  and one or more oxides selected from  $\text{ZnO}$  and  $\text{Y}_2\text{O}_3$  (column 3, lines 11-23; yttrium orthosilicate contains silica molecules and yttrium oxide).

Berkstresser et al. further disclose that displays using this phosphor yield high brightness with minimum excitation and are easily manufactured (column 2, lines 43-45).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Minami et al. to include that the phosphor is configured such that the ceramic oxide host compound comprises  $\text{SiO}_2$  and one or more oxides selected from  $\text{ZnO}$  and  $\text{Y}_2\text{O}_3$ , as taught by Berkstresser et al., to have a device that yields high brightness with minimum excitation, which is easily manufactured.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record) in view of Minami et al. (Jpn. J. Appl. Phys. Vol. 40) (of record) and in further view of Chase et al. (J. Appl. Phys. Vol. 40) (of record).

As to claim 43, Maeno et al. and Minami et al. disclose the electroluminescent device according to claim 41. Maeno et al. and Minami et al. fail to disclose that the barrier layer comprises tantalum oxide.

Chase et al. disclose an electroluminescent device wherein the barrier layer is tantalum oxide (section II, Device Fabrication; the first paragraph). The tantalum oxide layer protects the phosphor.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Maeno et al. to include that the barrier layer is tantalum oxide, as taught by Chase et al., to protect the phosphor layer.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record) in view of Chase et al. (J. Appl. Phys. Vol 40) (of record).

As to claim 28, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. fail to disclose that the barrier layer comprises tantalum oxide.

Chase et al. disclose an electroluminescent device wherein the barrier layer is tantalum oxide (section II, Device Fabrication; the first paragraph). The tantalum oxide layer protects the phosphor.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Maeno et al. to include that the barrier layer is tantalum oxide, as taught by Chase et al., to protect the phosphor layer.

Claims 8, 10, 12-21 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minami et al. (Jpn. J. Appl. Phys. Vol 40) (of record).

Regarding claims 8, 10, 12-21 and 46-48, Minami et al. disclose the electroluminescent device according to claims 6, 7 and 44. Minami et al. fail to specifically disclose the ceramic oxide host and metal oxide of claims 8-10, 12-21 and 46-48. It would have been obvious to one having ordinary skill in the art at the time the invention was made to disclose the claimed ceramic oxide host and metal oxide, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record).

As to claim 37, Maeno et al. disclose the electroluminescent device according to claim 35. Maeno et al. fail to specifically disclose that the electric field generator is configured to produce a voltage in the range from about 5,000 volts to 20,000 volts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the electric field generator to produce a voltage in the range from about 5,000 volts to 20,000 volts, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeno et al. (Jpn. J. Appl. Phys. Vol. 39) (of record) in view of Eida et al. (U.S. 2002/0021087).

As to claims 30 and 31, Maeno et al. disclose the electroluminescent device according to claim 1. Maeno et al. fail to disclose that the barrier layer is calcium oxide or zirconia.

Eida et al. disclose an electroluminescent device with a barrier layer of calcium oxide (paragraph 0191). Eida et al. further disclose that the calcium oxide barrier layer is used as an insulating material (paragraph 0186).


Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent device of Maeno et al. to include that the barrier layer is calcium oxide or zirconia, as taught by Eida et al., to impart an insulating layer to the device.


***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning   
14 February 2006

  
**ASHOK PATEL**  
**PRIMARY EXAMINER**